

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference WIBL-PWO-035	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2005/007249	International filing date (day/month/year) 03/03/2005	(Earliest) Priority Date (day/month/year) 04/03/2004
Applicant  WHITEHEAD INSTITUTE FOR BIOMEDICAL RESEARCH		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 6

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

**Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)**

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
- a. type of material
- ☐ a sequence listing
- ☐ table(s) related to the sequence listing
- b. format of material
- ☒ in written format
- ☒ in computer readable form
- c. time of filing/furnishing
- ☐ contained in the international application as filed
- ☐ filed together with the international application in computer readable form
- ☒ furnished subsequently to this Authority for the purpose of search
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 C12Q1/68 G01N33/53		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 G01N C12Q		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 2005/054461 A (WHITEHEAD INSTITUTE FOR BIOMEDICAL RESEARCH; ODOM, DUNCAN, T; YOUNG, R) 16 June 2005 (2005-06-16) claims page 11, line 4 - page 12, line 21 page 28, line 16 - page 29, line 22 page 32, line 5 - line 17 -----	1-60
P,X	WO 2004/097577 A (NEW YORK UNIVERSITY; CHEREPINSKY, VERA; FENG, JIA-WU; REJALI, MARC; MI) 11 November 2004 (2004-11-11) page 24, line 3 - page 45, line 12 claims 73-94 -----	1-35
P,X	WO 2004/087965 A2 (REGULOME CORPORATION; STAMATOYANNOPOULOS, JOHN, A; MCARTHUR, MICHAEL;) 14 October 2004 (2004-10-14) claims ----- -/--	1-60
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
29 August 2005		19/09/2005
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  Routledge, B

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 2004/053106 A (REGULOME CORPORATION; STAMATOYANNOPOULOS, JOHN, A; MCARTHUR, MICHAEL;) 24 June 2004 (2004-06-24) claims page 16, line 25 - line 32 page 17, line 15 - page 22, line 17 page 38, line 7 - page 48, line 7 -----	1-60
P,X	MUKHERJEE ET AL: "Rapid analysis of the DNA binding specificities of transcription factors with DNA microarrays." NATURE GENETICS, vol. 36, no. 12, December 2004 (2004-12), pages 1331-1339, XP002342489 the whole document -----	1-35
Y	WO 02/14550 A (TRANSGENETICS INCORPORATED; BURGESS, ROBERT, M., JR; LUNYAK, VICTORIA;) 21 February 2002 (2002-02-21) claims page 43, paragraph 2 -----	1-60
Y	WO 01/16378 A (WHITEHEAD INSTITUTE FOR BIOMEDICAL RESEARCH) 8 March 2001 (2001-03-08) claims -----	1-60
Y	US 6 109 776 A (HAAS ET AL) 29 August 2000 (2000-08-29) claims column 4, line 24 - column 5, line 55 figures 9-15 -----	1-60
X	ODOM D T ET AL: "CONTROL OF PANCREAS AND LIVER GENE EXPRESSION BY HNF TRANSCRIPTION FACTORS" SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,, US, vol. 303, no. 5662, 27 February 2004 (2004-02-27), pages 1378-1381, XP001205726 ISSN: 0036-8075 -----	1-35
Y	page 1378, right-hand column, paragraph 2 page 1379, left-hand column, paragraph 4 page 1381, left-hand column, paragraph 2 - middle column, paragraph 1 -----	1-60
X	BAR JOSEPH ET AL: "Computational discovery of gene modules and regulatory networks" NATURE BIOTECHNOLOGY, vol. 21, no. 11, November 2003 (2003-11), pages 1337-1342, XP002342488 the whole document -----	1-60
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	LEE T I ET AL: "Transcriptional regulatory networks in <i>Saccharomyces cerevisiae</i> " SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,, US, vol. 298, no. 5594, 25 October 2002 (2002-10-25), pages 799-804, XP002327643 ISSN: 0036-8075 page 799, right-hand column, paragraph 2 - paragraph 3 page 804, middle column, paragraph 4 -----	1-60
X	WYRICK ET AL: "Deciphering gene expression regulatory networks." CURRENT OPINION IN GENETICS AND DEVELOPMENT, vol. 12, April 2002 (2002-04), pages 130-136, XP002342490 the whole document -----	1-60
X	WEINMANN A S ET AL: "Isolating human transcription factor targets by coupling chromatin immunoprecipitation and CpG island microarray analysis" GENES AND DEVELOPMENT, COLD SPRING HARBOR LABORATORY PRESS, NEW YORK, US, vol. 16, no. 2, 15 January 2002 (2002-01-15), pages 235-244, XP002327644 ISSN: 0890-9369 page 236, left-hand column, line 3 - line 11 page 241, right-hand column, paragraph 5 - page 242, left-hand column, paragraph 1 -----	1-35
Y	HARTEMINK A J ET AL: "COMBINING LOCATION AND EXPRESSION DATA FOR PRINCIPLED DISCOVERY OF GENETIC REGULATORY NETWORK MODELS" PROCEEDINGS OF THE PACIFIC SYMPOSIUM ON BIOCOMPUTING, 2002, pages 437-449, XP009046817 the whole document -----	1-60
X		1-35
Y		1-60

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 1-60 (partly)

Present claims 1-60 relate to methods which recite an extremely large number of possible proteins of interest. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to methods involving transcription factors/regulators.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

**Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 1-60 (partly)  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 2005054461	A	16-06-2005	WO 2005054461	A2	16-06-2005
WO 2004097577	A	11-11-2004	WO 2004097577	A2	11-11-2004
WO 2004087965	A2	14-10-2004	US 2004191779	A1	30-09-2004
			JP 2004298178	A	28-10-2004
WO 2004053106	A	24-06-2004	AU 2003302777	A1	30-06-2004
			WO 2004053106	A2	24-06-2004
WO 0214550	A	21-02-2002	AU 8318001	A	25-02-2002
			CA 2419479	A1	21-02-2002
			EP 1425579	A2	09-06-2004
			WO 0214550	A2	21-02-2002
WO 0116378	A	08-03-2001	CA 2383928	A1	08-03-2001
			EP 1220949	A2	10-07-2002
			JP 2003508066	T	04-03-2003
			WO 0116378	A2	08-03-2001
			US 6410243	B1	25-06-2002
US 6109776	A	29-08-2000	NONE		